



COGEGUM AFR/12

Thermoplastic, halogen-free, fire retardant sheathing compound for power, signal and control cables.

Polyolefinic based thermoplastic compound containing a fire retardant system that contributes to give the cable self-extinguish properties without halogenidric acids evolution; furthermore, toxic and corrosive gases emission and smoke generation are particularly reduced. These characteristics make this compound suitable in all applications where the fire behaviour of cable materials is one of the main factors to be considered in establishing a high safety level in public places.

Standard complying: CEI 20.11 type M1, VDE 0207 part 24 type HM2, BS 6724, BS 7655 type LTS 1, LTS 3 and OVE K-81 part 9 type MHN2, Cenelec HD 624.7 S1.

Physical and mechanical properties	typical value	unit	test method
- Density at 23°C	1.47	g/cm ³	ASTM D 792
- Shore A/D hardness	94/50	-	ISO R 868
- M.F.I., 150°C/21.6 kg	5.2	g/10'	Padanaplast
- Unaged mechanical properties: tensile strength elongation at break	11.9 185	MPa %	IEC 60811
- Mechanical properties after ageing in air oven, 168 hours at 100°C: variation on tensile strength variation on elongation at break	+10 -16	% %	IEC 60811
- Mechanical properties after SAE 20 oil immersion, 4 hours at 70°C: variation on tensile strength variation on elongation at break	-22 +1	% %	IEC 60811
- Mechanical properties after water immersion, 168 hours at 70°C: variation on tensile strength variation on elongation at break	-12 -24	% %	BS 6724
- Mechanical properties after hydrocarbons immersion, 4 hours at 25°C: variation on tensile strength variation on elongation at break	-3 0	% %	CEI 20-11
- Hot pressure test at 80°C, max. penetration	<50	%	IEC 60811
- Heat shock test at 150°C	pass	-	IEC 60811
- Cold bend at -25°C	pass	-	IEC 60811
- Cold impact at -25°C	pass	-	IEC 60811
- Water absorption, 24 hours at 100°C	4.2	mg/cm ²	IEC 60811

Electical properties	typical value	unit	test method
- Volume resistivity at 20°C	4.9 E 13	Ω•cm	IEC 60502
- Volume resistivity at 70°C	1.1 E 10	Ω•cm	IEC 60502
- Insulation constant at 20°C	180	MΩ•km	IEC 60502
- Insulation constant at 70°C	0.04	MΩ•km	IEC 60502

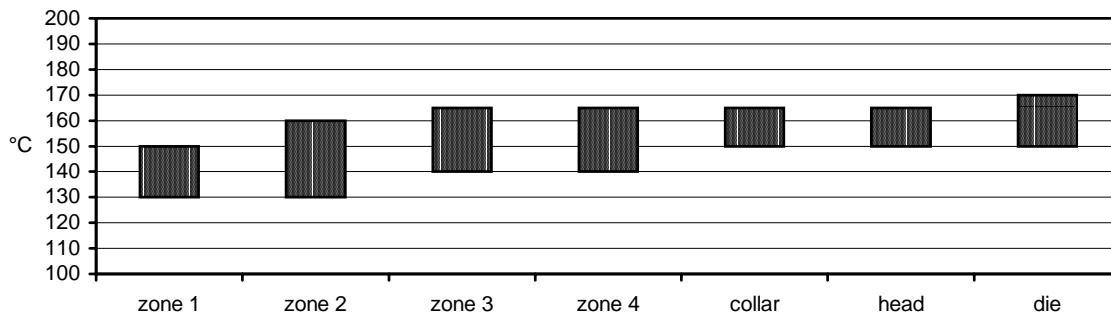
Burning properties	typical value	unit	test method
- Oxygen index	39	%O ₂	ASTM D 2863
- Temperature index	310	°C	NES 715
- Halogenidric acid emission	<0.1	%	IEC 60754-1
- Gas evolved acidity (pH)	5.4	-	IEC 60754-2
- Water solution gas evolved conductivity	1.44	μS/mm	IEC 60754-2
- Smoke evolution (1.3 mm thick plate) DS max., fl./not fl. DS max. corrected, fl./not fl. DS 90, fl./not fl. DS 4, fl./not fl.	39/190 39/190 5/3 10/99	- - - -	ASTM E-662

Typical values reported above are the averages obtained from extruded tape or pressed plate

Processing

Cogegum AFR/12 can be processed using a 18-25 L/D extruder having an adequate thermoregulation of the barrel and a low compression screw (rubber or "halogen-free" type). Also PVC screws can be used, but with a possible decrease of the maximum output of the extruder; polyethylene screws are not advisable.

The following temperature profile is suggested:



These conditions are indicative and may depend on the extruder and crosshead and tools design; however the melt temperature at the exit of the die cannot exceed 170°C.

If necessary only wide mesh net can be used (<100 mesh/cm²). Anyway the use of the breaker plate is advisable, in particular using low compression screws.

A wide range of colour masterbatches is available; it is suggested an addition of 1.5 % (approx.) by weight. At the indicated conditions our masterbatches do not influence the general properties of the compound.

Storage

The compound must be stocked in the following conditions.

- closed and unbroken bags
- ambient temperature generally not exceeding 30°C
- avoid direct exposure to sunlight and weathering

The compound could be negatively affected by long stocking time. Padanaplast suggests its use within 6 months from the compounding date.

Packaging

Cogegum AFR/12 is available in multilayer moisture-proff 25 kg bags on 1250 kg pallets or 1000 kg box.

Our Technical Service is at your disposal for further information and consultancy.

Information given is indicative and does not involve any our engagement or warranty on results. It's necessary to verify the fitness of the product to the specific needs using the proper technologies and testing procedures.

Specifications reported on this bulletin can not be used as reference values in a technical or sale contract.



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